CLAIMS

What is claimed is:

1.   A method for calculating a protect route in a communication network, the method comprising:

selecting a working route among a plurality of candidate working routes in a communication network; and

selecting a protect route among a plurality of candidate protect routes in the communication network, where each candidate protect route in the plurality of candidate protect routes includes an associated administrative weight, and where the protect route that is selected has a least value of administrative weight among the candidate protect routes.

2.   The method of claim 1, wherein a candidate protect route in the plurality of candidate protect routes has an associated administrative weight that includes a weighted value of a predefined high value if a link in the candidate protect route shares a resource with a link of the working route.

3.   The method of claim 1, wherein a candidate protect route in the plurality of candidate protect routes has an associated administrative weight that includes a weighted

44

value of zero if each link in the candidate protect route

is separate from a resource with a link of the working

route.

4. The method of claim 1, wherein the working route has a

least length amount among the plurality of candidate

working routes.

5. The method of claim 1, further comprising:

periodically calculating a protect route based upon a

topology change in the communication network.

6. The method of claim 1, wherein a link of a candidate

protect route can be determined to share a resource with a

link of the working route by use of an identifier of the

link of the candidate protect route.

7. The method of claim 6, wherein the identifier

comprises at least one of a fiber identifier, cable

identifier, conduit identifier, right of way (ROW)

identifier, zone identifier, and region identifier.

8. The method of claim 6, wherein the identifier is

stored in a database.

9. The method of claim 1, wherein each of the working route and protect route comprises at least one of a fiber and cable.

10. The method of claim 1, wherein the resource comprises at least one of a cable, conduit, right of way (ROW), zone, and region.

11. The method of claim 1, wherein the administrative weight associated with each candidate protect route is stored in a database.

12. An apparatus for calculating a protect route in a communication network, the apparatus comprising:

a routing engine configured to select a working route among a plurality of candidate working routes in a communication network , and configured to select a protect route among a plurality of candidate protect routes in the communication network, where each candidate protect route in the plurality of candidate protect routes includes an associated administrative weight, and where the protect route that is selected has a least value of administrative weight among the candidate protect routes;

an edge call control module configured to set up the selected working route and protect route in the communication network; and

a database configured to store the associated administrative weights that are queried by the routing engine in order to select the protect route.

13. The apparatus of claim 12, wherein a candidate protect route in the plurality of candidate protect routes has an associated administrative weight that includes a weighted value of a predefined high value if a link of the candidate protect route shares a resource with a link of the working route.

14. The apparatus of claim 12, wherein a candidate protect route in the plurality of candidate protect routes has an associated administrative weight that includes a weighted value of zero if each link in the candidate protect route is separate from a resource with a link of the working route.

15. The apparatus of claim 12, wherein the working route has a least length amount among the plurality of candidate working routes.

47

16. The apparatus of claim 12, wherein the edge call control module is configured to periodically request the routing engine to calculate a protect route based upon a topology change in the communication network.

17. The apparatus of claim 12, wherein a link of a candidate protect route can be determined to share a resource with a link of the working route by use of an identifier of the link of the candidate protect route.

18. The apparatus of claim 17, wherein the identifier comprises at least one of a fiber identifier, cable identifier, conduit identifier, right of way (ROW) identifier, zone identifier, and region identifier.

19. The apparatus of claim 17, wherein the identifier is stored in the database.

20. The apparatus of claim 12, wherein each of the working route and protect route comprises at least one of a fiber and cable.

21. The apparatus of claim 12, wherein the resource comprises at least one of a cable, conduit, right of way (ROW), zone, and region.

22. An article of manufacture, comprising:

a machine-readable medium having stored thereon instructions to:

select a working route among a plurality of candidate working routes in a communication network; and

select a protect route among a plurality of candidate protect routes in the communication network, where each candidate protect route in the plurality of candidate protect routes includes an associated administrative weight, and where the protect route that is selected has a least value of administrative weight among the candidate protect routes.

23. A method for calculating a protect route in a communication network, the method comprising:

establishing a working route in a communication network based upon a length of the working route, the working route formed by at least one working route link; and

49

establishing a protect route in the communication network, the protect route formed by at least one protect route link, with the protect route being selected based upon a length of the protect route link and a weighted value that depends on whether a protect route link shares a resource with a working route link.

24. The method of claim 23, wherein the weighted value is a predefined high value if the protect route link shares a resource with the working route link.

25. The method of claim 23, wherein the weighted value is zero if the protect route link is separate from a resource with the working route link.

26. The method of claim 23, wherein the resource comprises at least one of a cable, conduit, right of way (ROW), zone, and region.

27. An apparatus for calculating a protect route in a communication network, the apparatus comprising:

means for selecting a working route among a plurality of candidate working routes in a communication network; and

means for selecting a protect route among a plurality of candidate protect routes in the communication network, where each candidate protect route in the plurality of candidate protect routes includes an associated administrative weight, and where the protect route that is selected has a least value of administrative weight among the candidate protect routes.

28. A communication method, comprising the steps of:

assigning each of a plurality of routes in a communication network with a corresponding one of a plurality of administrative weight values ;

identifying a first administrative weight value which is less than remaining ones of said plurality of administrative weight values;

designating a first one of said plurality of routes associated with said first administrative weight value as a working route; and

identifying a second administrative value from said remaining ones of said plurality of administrative weight values, said second administrative value being less than other administrative weight values of said remaining ones of said plurality of administrative weight values; and

designating a second one of said plurality of routes associated with said second administrative weight value as a protect route, said protect route having a physical resource different than that of said working route.

29. A communication method in accordance with claim 28, wherein each of a subset of said plurality of routes shares a resource with said working route, said assigning step includes a step of assigning each of administrative weight values associated with said subset of said routes which are greater than other administrative weight values associated with routes other than said subset of said plurality of routes.